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| 10/580,937   | 05/30/2006  | Detlev Glittenberg   | 19790-010US1        | 6804             |
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| EXAMINER<br>CORDRAY, DENNIS R  |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
| 1791   |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

### Office Action Summary

**Application No.**

10/580,937

**Applicant(s)**

GLITTENBERG, DETLEV

**Examiner**

DENNIS CORDRAY

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-14 is/are pending in the application.
- 4a) Of the above claim(s) 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12 and 14 is/are rejected.
- 7) ☒ Claim(s) 11-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 7/3/2006
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 11 and 13 are objected to under 37 CFR 1.75(c) as being in improper form. See MPEP § 608.01(n).

Claim 11 is improper because it refers in the alternative to two different statutory groups of inventions, a composition and a process.

Multiple dependent claim 13 is improper because it depends from multiple dependent claim 11.

Accordingly, the claims have not been further treated on the merits.

Claim 12 is objected to as it depends from a withdrawn claim.

2. In the event that Claim 11 is not found to be improper, the following rejections of Claims 11 -13 under 35 U.S.C. 101 and/or 35 U.S.C. 112, 2<sup>nd</sup> paragraph are made as well as the rejections of said claims below over prior art..

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 11-13 are rejected under 35 U.S.C. 101 because it refers to two different statutory groups of inventions, a composition and a process whereas the statute permits patents to be granted to only for "any new and useful process, machine, manufacture,

or composition of matter, or any new and useful improvement thereof." It does not permit a single claim drawn to a combination of statutory classes of inventions.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4, 10-13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites "characterized in that it comprises 0.005-2% by dry weight of said starch ester." It is not clear if the word "it" refers to the paper, to the thickener (from Claim 1, upon which Claim 4 depends) or to the coating composition.

Claim 10 recites "for 100 parts pigment, the composition comprises 0.01-2 parts starch ester." It is not clear if the 100 parts pigment refers to the one or more pigments of Claim 8, from which Claim 10 depends or if a particular pigment from the one or more pigments is intended. It is further not clear is the 0.01-2 parts starch ester is the cold water swellable starch ester of Claim 8 or a different starch ester.

Claim 11 recites a method of manufacturing paper "comprising applying to ... a sheet of paper or a paper web a composition according to claim 1 or prepared according to the process of claim 8." It is not clear if the choices are A) applying a composition "according to claim 1" vs. applying a composition "prepared according to the process of claim 8;" B) manufacturing paper "comprising applying to ... a sheet of

paper or a paper web a composition according to claim 1" vs. manufacturing paper prepared according to the process of claim 8;" or C) some other combination of alternatives.

Claim 14 recites "characterized in that it comprises 0.008-1.7% by dry weight of said starch ester." It is not clear if the word "it" refers to the paper, to the thickener (from Claim 1, upon which Claim 14 depends) or to the coating composition.

Claims 12-13 depends from and inherits the indefiniteness of Claim 11.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al (EP-415385 A1).

Claims 1-4 and 14: Yoshida et al discloses a starch urea phosphate derived from potato or tapioca starch and having a gelatinization temperature of 35-55 °C, thus is cold water swellable within the definition on p 4, last paragraph of the instant Specification (Abs; col 3, lines 48-58; col 4, lines 15-17). The starch urea phosphate is made by mixing starch, urea, phosphoric acid or salt thereof and water, and heating the mixture at a temperature of 80-150 °C for 30 minutes to 5 hours, which overlays the method discussed on p 5, 3rd paragraph of the instant Specification, thus a starch

carbamate phosphate ester is made (col 4, lines 4-14; cols 5-6, Production Examples 1-3). Slurries of 1% the starch urea phosphate are disclosed as sprayable coatings for paper (col 4, lines 54-55; cols 6-7, Example 1). Polyacrylamide, polyvinyl alcohol, polyethyleneimine, polyethyleneoxide, etc., which are binders known in the art can be used with the sprayable coatings (col 4, lines 36-40).

Although not explicitly disclosed as a thickener, the starch phosphate esters will act as thickeners in the composition because, where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claim 11: Yoshida et al discloses a method of making paper comprising spraying a 1% slurry of the starch on a paper web (coating the paper web) and drying the web. The composition can be used with a polyacrylamide, polyvinyl alcohol, polyethyleneimine, polyethyleneoxide, etc., which are binders known in the art. Paper made by the method is disclosed (col 4, line 36 to col 5, line 2; cols 6-7, Example 1).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6, 8, 10, 11 and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Smit (3591412).

Claims 1-3 and 5: Smit ('412) discloses a coating composition comprising a dispersion of pigments, binders, water and optionally other additives. The binder comprises at least partly of a depolymerized starch phosphate ester (Abs; col 2, lines 33-41 and 62-67; col 5, lines 22-29). Smit discloses that the starch phosphate ester can be used in admixture with other binders (col 4, lines 20-25). The starch phosphate ester is made in some embodiments by heating a homogeneous mixture of a potato or tapioca starch, a phosphoric acid or salt thereof and urea at a temperature from about 80 °C to about 200 °C for 15 minutes to 24 hours, which overlays the method discussed on p 5, 3rd paragraph of the instant Specification, thus a starch carbamate phosphate ester is made (col 3, lines 15-75). The product is substantially identical to the claimed starch carbamate phosphate ester and will be cold water swellable and will also act as a thickener in the composition for reasons given previously or, at least, it would have been obvious to one of ordinary skill in the art to obtain the claimed cold water swellable starch ester and thickening properties.

Claim 6: In examples, the coating composition is diluted to a solids content of 38% to 40% (col 6, lines 1-3 and 46-47; col 7, lines 25-28).

Claim 8: Smit ('412) discloses a method of preparing the coating composition comprising adding the starch phosphate ester to water, adding portions of the starch

phosphate ester solution to different pigments, combining the pigment dispersions and homogenizing the mixture, and finally adding other additives and a latex binder to the solution under moderate stirring (mixing). Thus, in the various steps, starch phosphate ester, pigment dispersion and latex binder are added to an aqueous solution and the solution mixed (col 4, lines 38-57).

Claim 11: Smit ('412) discloses a method of making paper comprising coating a paper with the coating composition, drying and calendaring the paper (col 5, lines 6-13; cols 6 and 7, Examples 1 and 2).

Claims 4, 10 and 14: Smit ('412) discloses that an admixture of starch phosphate ester and other binders can be used. Smit ('412) also discloses an example wherein the coating composition comprises binder in an amount of about 23.7% by weight of the pigment. When an admixture of starch phosphate ester and other binders is used, part of the starch phosphate ester is replaced by a latex binder (col 6, lines 5 and 6; Example 1). Although only one example is given of such admixture, the disclosure also embodies compositions wherein more of the starch phosphate ester is replaced with other binders and where the starch phosphate ester is only present in the claimed ranges with respect to the pigment and with respect to the dry weight of the composition or, at least, the claimed ranges would have been obvious to one of ordinary skill in the art.

7. Claims 1-6, 8, 10, 11 and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Smit (3682733).



Claims 1-3, 5, 6, 8 and 11: The disclosure of Smit ('733) is similar to that of Smit ('412). See Abs; col 2, lines 42-49 and 70-72; col 3, lines 23-72; col 4, lines 6-8, 27-32 and 45-64; col 5, lines 13-20 and 30-37; col 6, lines 6-17; cols 6 and 7, Examples 1 and 2).

Claims 4, 10 and 14: Smit ('733) discloses that an effective amount of binder is in the range of about 10-25 weight percent by weight of the pigment. The binder can be a combination of starch phosphate ester and other binders. Although a preferred binder comprises 50% or more of starch phosphate ester, the amount is not a requirement (col 6, lines 6-17). The disclosure also embodies compositions with binders comprising less than 50% of the starch phosphate ester and where the starch phosphate ester is only present in the claimed ranges with respect to the pigment and with respect to the dry weight of the composition or, at least, the claimed ranges would have been obvious to one of ordinary skill in the art.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as unpatentable over Smit ('412 or '733).

Smit ('412 or '733) is used as above. Smit ('412 or '733) does not disclose adding the additional binders before the starch phosphate ester, but does disclose an admixture of binders. Smit ('412 or '733) does not discourage or teach against a particular order of addition of binders and, absent evidence of unobvious results, it would have been obvious to one of ordinary skill in the art to add the binders in any order to the composition and to have a reasonable expectation of success.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as unpatentable over Smit ('412 or '733) in view of Smook (Handbook for Pulp and Paper Technologists).

Smit ('412 or '733) is used as above. Smit ('412 or '733) does not disclose removing excess coating.

Smook describes various coaters for paper and teaches that most coaters comprise a means to remove excess coating (p 290, first 3 paragraphs, Figs. 18-11 and 18-12; p 291, first paragraph, Figs. 18-14 and 18-15; p 292, Figs. 18-19 and 18-20).

The art of Smit ('412 or '733), Smook and the instant invention are analogous as pertaining to coating paper. It would have been obvious to one of ordinary skill in the art to include a step of removing excess coating in the papermaking process of Smit ('412 or '733) in view of Smook as a typical coating practice.

10. Claims 1-3, 5, 8, 9, 11 and 12 are rejected under 35 U.S.C. 103(a) as unpatentable over Kesselmans (WO 99/64467).

Claims 1-3 and 5: Kesselmans discloses a starch phosphate ester made by mixing a high amylopectin potato starch, urea, phosphoric acid or salt thereof and water, and heating the mixture at a temperature of 100-180 °C for less than an hour, which overlays the method discussed on p 5, 3rd paragraph of the instant Specification, thus a starch carbamate phosphate ester is made (Abs; p 3, lines 14-25; p 6, lines 27-30; p 7, line 18 to p 8, line 7; p 8, lines 17-18; p 10, lines 1-11, Example 1). The product

is substantially identical to the claimed starch carbamate phosphate ester and will be cold water swellable for reasons given previously.

Kesselmans discloses that the starch phosphate ester is used in surface coating paper and allows a higher loading of pigment in the coating. Kesselmans also discloses that coating compositions comprise pigments, binders and water, thus an aqueous coating composition comprising the starch phosphate ester and pigment would have been obvious to one of ordinary skill in the art (p 9, lines 5-18). Although not explicitly disclosed as a thickener, the starch phosphate esters will act as thickeners in the composition for reasons given previously. Combining the starch phosphate ester with formaldehyde resins provides water resistance (formaldehyde resins are known strength agents for paper, thus are binders). Alternatively, several binders are disclosed and it would have been obvious to one of ordinary skill in the art to use a combination of two or more binders as a functionally equivalent option, each having been disclosed for the same purpose in the prior art.

Claims 8, 9, 11 and 12: Kesselmans does not disclose combining and mixing an aqueous solution of the ingredients to form the coating composition. However, due to the disclosure that coating compositions comprise the claimed ingredients and water, one of ordinary skill in the art would have found it obvious to add the solid ingredients to water and mix the solution to obtain a homogeneous coating composition. Absent convincing evidence of unobvious results, any order of addition would have been obvious. Since the composition is a paper coating composition, the step of coating paper or a paper web would have been obvious. Removing excess coating, drying the

paper and calendaring the paper are standard papermaking steps and would also have been obvious.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hjermstad (3069411), Beersma et al (3640756) and Mass et al (6613152) disclose other cold water swellable starch phosphate esters made according to the method of the instant Specification and their use in coating paper.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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